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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,312	07/27/2001	Hown Cheng	Stream-09US	9556
20284	7590	07/28/2005	EXAMINER	
CIRRUS LOGIC, INC. CIRRUS LOGIC LEGAL DEPARTMENT 2901 VIA FORTUNA AUSTIN, TX 78746			COLEMAN, ERIC	
			ART UNIT	PAPER NUMBER
			2183	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/917,312

Applicant(s)

CHENG ET AL.

Examiner

Eric Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 27-29,31-36,38-43,45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcelik (patent No. 5,928,321) and Bubil (patent No. 6,012,137) in view of Young (patent No. 5,619,706).

3. Ozcelik taught the invention substantially as claimed including a data processing ("DP") system comprising:

- a) Processing unit (RISC CPU 100) (e.g., see fig. 1 and col. 5, lines 41-54);
- b) Instruction cache (104,150) coupled to the processing unit;
- c) Code random access memory (102) coupled to the processing unit;
- d) Data memory (112) and another data memory (152) (e.g., see col. 8, lines 23-31) coupled to the processing unit;
- e) Register group (132,134 and another register group 138,140)) (e.g., see fig.

1). Further since the Ozcelik system comprises a RISC CPU and the use of register windowing was well known to be used in a RISC processor for processing branches without having to take the time to save the results of the original routine then of ordinary skill would have been motivated to use register windowing in the Ozcelik system. In

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register windowing a separate group of registers is used for each of the plural routines or subprograms.

4. Ozcelik did not expressly detail (claims 27,34,41) a high priority interrupt controller and low priority interrupt controller coupled to the processing unit. Bublil taught an interrupt controller (208) for controlling interrupts (e.g., see fig. 2a and col. 17, lines 4-16).

5. Ozcelik expressed detailed that the teachings of Bubil (Serial Number 08/865749 now patent No. 6,012,137) were expressly incorporated by reference (e.g., see col. 1, line 33-47).

6. Ozceik taught storing code for interrupt service routines for time-critical tasks that are commenced immediately and not stalled in a permanent portion of instruction memory (e.g., see col. 3, lines 33-36 and col. 4, lines 21-56 and col. 6, lines 18-31) and storing lower priority or non-time critical routines in off-chip memory and swapping the instructions into permanent memory with the instructions are to be executed (e.g., col. 4, lines 28-42) where lower priority routines include relatively straightforward interrupt routines (e.g., see col. 9, lines 25-49). Consequently, one of ordinary skill would have been motivated to incorporate interrupt service controllers for the time critical tasks and non-time critical task to provide separate scheduling of the high priority time critical task and the low priority non-time critical tasks. This would provide for efficient control of prioritizing low priority interrupts and of swapping of low priority interrupt service routines into permanent memory especially while a time critical interrupt was being processed by a high priority interrupt controller (e.g., see col. 12, lines 5-64).

7. On the other hand, Young taught the use of plural independent interrupt controllers for separate groups of interrupts (e.g., see fig. 3) (e.g., see col. 3, lines 20-43).

8. It would have been obvious to one of ordinary skill to combine the teachings of Ozcelik and Young. Both references were directed toward the problems of processing plurality of groups of interrupts in a processing system. The incorporation of the Young teachings of plural interrupt controllers would have provided separate and more efficient control and scheduling of different groups of interrupts for the combined system.

9. As to the dedicating of the cache, register group data memory and low-priority interrupt controller for low priority tasks, Ozcelik separates the storage of the low priority and high priority instructions in a RISC system. The DRAM acts as a low level cache memory that stores the low priority instructions along with the registers that would be used in a register windowing RISC system that separately stores data for different routines in a different set of registers as well as the DRAM that stores data for processing the low priority. Also the High priority instructions are stored in the permanent memory while data memory 112 is used for high priority interrupts routines and in the register windowing RISC each routine has it own group of registers. The dedicating of separate interrupt controllers in the Ozcelik system was discussed above.

10. As to the video engine, video interface, audio engine and audio interface of claim 41, Bubil taught audio decoder, video decoder, output encoder that outputs to the monitor, input audio/video dmux (e.g., see fig. 1).

11. As to claim 31, 38,45, Bublil taught the demultiplexing of video and audio data (e.g., see fig. 1). Audio/ Video data organized to the MPEG standard was well known in the art at the time of the claimed invention. Therefore one of ordinary skill would have been motivated to use MPEG data for the demultiplexing to coherently communicate with other systems that communicate using the MPEG standard.

12. As to claim 32,39,46 Bublil taught sending video data to a monitor via line 130 in figure 1. User interface applications such as receiving input from the user were well known in the art at the time of the claimed invention to not to be time critical as the internally clocked operations of processing inherently require to be processed in a much shorter time period than the processing of the user interface.

13. As to claims 29,33,36,40,43,47, Ozcelik and Bublil taught a system that provided video data to a monitor via line 130 in figure 1 of Bublil. Therefore in the performance of off the shelf applications there would have been a requirement to send additional data to the monitor screen to update the screen. The video data for streaming video clearly would have required sending additional data for fast update of the screen within the range of microseconds. In other applications such as pop-up screens for advertising and word processing applications when the processor is busy processing many applications simultaneously the update of the screen would have occurred less frequently namely in the range of seconds. The operator normally can only key in data at a few characters per second. However when the processor is processing many applications simultaneously it was well known in the art for the user to wait for the processor to update the screen with the characters in the range of seconds. With this

the limitation of sending data to the screen during video compression or encoding would have been in the range of microseconds and the number of microseconds selected clearly would have been system dependent and the interval being under two microseconds would have been recognized by one of ordinary skill to be part at least one implementation of the Ozcelik and Bublil teachings. Also one of ordinary skill would have recognized that in at least one implementation of the Ozcelik and Bublil teachings the screen would have been updated for certain applications such pop-up window advertisement and word processing in every two seconds.

14. As to claim 28, 35,42, Bublil taught delivery of video information to output encoder 108 for output to monitor (e.g., see fig. 1). As discussed above the providing of additional data for video streaming would have required to be performed in a time-critical manner requiring a high priority to provide the encoded or compressed video data to the monitor via line 130 in Bublil. Otherwise the video shown on the screen would not be updated in time to provide seamless video.

15. Claims 30,44,37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcelik and Bublil in view of Young as applied to claim 27,34,44 above, and further in view of Kiryama (patent No. 5,561,466).

16. Kiryama taught multiplexing of audio and video streams (e.g., see figs. 1,5 and col. 4, lines 27-53).

17. It would have been obvious to one of ordinary skill in the DP art to combine the teachings of Ozcelik and Kiryama. Both references comprise the encoding of video and

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audio data. Ozcelik taught the demultiplexing of multiplexed video and audio data. The incorporation of the Kiriya teachings of multiplexing the video and audio data provides for the multiplexing the demultiplexed video and audio that would have provided for efficient transmission of data on one transmission medium.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Coleman whose telephone number is (571) 272-4163. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC


ERIC COLEMAN
PRIMARY EXAMINER